

CLAIMS

What is claimed is:

1. A method of converging an ITU Recommendation G.729 Annex B compliant voice activity detection (VAD) device, comprising the steps of:
 - determining a first set of running average background noise characteristics in accordance with Recommendation G.729B;
 - determining a second set of running average background noise characteristics; and
 - substituting said second set of running average background noise characteristics for said first set when a specific event occurs.
2. The method according to claim 1, wherein:
 - said specific event is an increasing divergence between said first and second sets of running average background noise characteristics with time.
3. A method of converging an ITU Recommendation G.729 Annex B compliant voice activity detection (VAD) device, comprising the steps of:
 - determining a noise identification threshold value;
 - determining a voice identification threshold value;
 - comparing an energy measure of a signal to a minimum threshold value, said noise identification threshold value, and said voice identification threshold value;
 - determining a first set of running average background noise characteristics in accordance with Recommendation G.729B;
 - determining a second set of running average background noise characteristics; and
 - substituting said second set of running average background noise characteristics for said first set when a specific event occurs.

4. The method according to claim 3, wherein:
said specific event is an increasing divergence between said first and second sets of running average background noise characteristics with time.
5. The method according to claim 3, wherein:
said second set of running average background noise characteristics is determined only when said energy measure of a signal equals or exceeds said minimum threshold value and is less than or equal to said noise identification threshold value.
6. A method of converging an ITU Recommendation G.729 Annex B compliant voice activity detection (VAD) device, comprising the steps of:
determining a noise identification threshold value;
determining a voice identification threshold value;
comparing a number of energy measures of a signal to a minimum threshold value, said noise identification threshold value, and said voice identification threshold value;
determining a first set of running average background noise characteristics in accordance with Recommendation G.729B;
determining a second set of running average background noise characteristics;
counting the number of consecutive times G.729 B update conditions are not met and assigning the count to a first counter variable; and
substituting said second set of running average background noise characteristics for said first set when a specific event occurs.
7. The method according to claim 6, wherein;
said specific event occurs when a predetermined value of said first counter variable is reached.

8. The method according to claim 6, further comprising the step of:
counting the number of consecutive times said G.729 B VAD detects voice frames and
assigning the count to a second counter variable, wherein
said specific event occurs when a predetermined value of said second counter variable is
reached.
9. The method according to claim 8, wherein:
said specific event occurs when both a predetermined value of said first counter variable is
reached and a predetermined value of said second counter variable is reached.
10. A method of converging an ITU Recommendation G.729 Annex B compliant voice
activity detection (VAD) device, comprising the steps of:
determining a noise identification threshold value;
determining a voice identification threshold value;
comparing a number of energy measures of a signal to said noise identification threshold
value and said voice identification threshold value;
determining a first value representing an average of said number of energy measures, when
said energy measure is less than or equal to said noise identification threshold and greater than or
equal to a minimum threshold value, wherein only the energy measures of said number of energy
measures having values less than said noise identification threshold value and greater than said
minimum threshold value are used to determine said first value;
determining a second value representing an average of said number of energy measures,
when said energy measure is greater than said voice identification threshold, wherein only the
energy measures of said number of energy measures having values greater than said noise
identification threshold value are used to determine said second value; and
determining a first set of running average background noise characteristics in accordance
with Recommendation G.729B;
determining a second set of running average background noise characteristics;
substituting said second set of running average background noise characteristics for said

first set when a specific event occurs.

11. The method according to claim 10, wherein:
said noise and voice identification threshold values are based on said first and second values.
12. The method according to claim 10, further comprising the steps of:
measuring the maximum block energy occurring during an updating period, τ_p , and
assigning said measured maximum block energy to E_{\max} ; and
measuring a minimum block energy occurring during said updating period, τ_p , and
assigning said measured minimum block energy to E_{\min} , wherein:
said noise and voice identification threshold values are based on said measured minimum and maximum block energies.
13. The method according to claim 12, wherein:
said noise and voice identification threshold values are further based on said first and second values.